Search outcome

Eighty three papers were found of which 81 were irrelevant; the remaining papers are shown in table 1.

Comment

In these flawed, small studies needle aspiration is shown to be useful in some cases. However the failure rate is high and aspiration cannot therefore be thought of as a single complete treatment for this condition. Further studies are required to confirm the decrease in length of stay in the aspiration group.

Clinical bottom line

Needle aspiration may be carried out as the first treatment of spontaneous pneumothoraces without tension. Patients must then be observed as subsequent intercostal drainage may be necessary.

- 1 Harvey J, Prescott RJ. Simple aspiration versus intercostal tube drainage for spontaneous pneumothorax in patients with normal lungs. *BMJ* 1994;309:1338-9.
- 2 Andrivet P, Djedaini K, Teboul JL, *et al.* Spontaneous pneumothorax. Comparison of thoracic drainage vs immediate or delayed needle aspiration. *Chest* 1995;108:335-9.

Oral or intravenous steroids in acute severe asthma

Report by Martin Smith, *Specialist Registrar*
Search checked by Terry Gilpin, *Specialist Registrar*

Clinical scenario

A 24 year old male with asthma presents to the emergency department with severe wheeze and dyspnoea. While nebulised bronchodilators are being administered you wonder whether it is better to prescribe oral or intravenous steroids.

Three part question

In [patients with acute severe asthma] are [oral prednisolone as good as intravenous hydrocortisone] in [improving respiratory symptoms]?

Search strategy

Medline 1966 to 3/99 using the OVID interface. {exp asthma OR asthma.mp} AND ([{exp steroids OR steroid\$.mp OR exp prednisolone OR prednisolone.mp} AND {exp administration, oral OR oral.mp}] AND [{exp steroids OR steroid\$.mp OR hydrocortisone.mp} AND {exp infusions, intravenous OR exp injections, intravenous OR intrave-

nous.mp}])) LIMIT to human and english language.

Search outcome

Sixty six papers were found of which 60 were irrelevant to the study question and one of insufficient quality for inclusion; of the five remaining, three were included in a meta-analysis. The remaining two papers are shown in table 2.

Comment

There is no good evidence for the superiority of either route of administration but all studies to date have been on very small numbers of patients. These studies may well have been of insufficient power to detect real differences (type II error).

Clinical bottom line

Steroids should continue to be given intravenously if intravenous access is necessary for other drugs or if the patient cannot take drugs by mouth. In other cases oral administration is acceptable.

- 1 Rowe BH, Keller JL, Oxman AD, *et al.* Effectiveness of steroid therapy in acute exacerbations of asthma: a meta-analysis. *Am J Emerg Med* 1992;10:301-10.
- 2 Barnett PL, Caputo GL, Baskin M, *et al.* Intravenous versus oral corticosteroids in the management of acute asthma in children. *Ann Emerg Med* 1997;29:212-17.

Table 2

Author, date, and country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weaknesses
Rowe <i>et al</i> , 1992, Canada ¹	30 PRCTs of which 6 addressed the issue of oral <i>v</i> intravenous therapy	Meta-analysis	Effectiveness in acute exacerbations	No significant difference	
Barnett <i>et al</i> , 1997, USA ²	49 children with moderate to severe asthma 2 mg/kg oral methylprednisolone (23) <i>v</i> 2 mg/kg intravenous prednisolone (26)	PRCT	Respiratory rate, FEV ₁ , oxygen saturation Admission rate	No significant difference No significant difference	Follow up only 4 hours No power study

FEV₁ = forced expiratory volume in one second; PRCT = prospective randomised controlled trial.

Table 3

Author, date, and country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weaknesses
Holdsworth <i>et al</i> , 1987, UK ¹	80 adult patients with radial head fractures Aspiration, bupivacaine injection, and early mobilisation <i>v</i> early mobilisation alone	PRCT	Range of movement Grip strength Aspiration success Pain after aspiration	No difference No results reported 3/41 could not be aspirated Improvement reported	Unblinded. Randomisation method not explicit. 14 patients lost to follow up. Measurements were taken at 2, 6, 12, 26, and 52 weeks; it is unclear which period the results presented apply to. Grip strength data are not reported
Dooley and Angus, 1991, UK ²	28 adult patients with type 1 or 2 radial head fractures Aspiration (13) <i>v</i> no aspiration	PRCT	Pain Range of movement	Better immediately after aspiration and at 3 and 6 months Better immediately after aspiration and at 3 and 6 months	Unblinded. Randomisation method not explicit. Small numbers. No statistical analysis. Non-standard methods for measurement of outcomes

PRCT = prospective randomised controlled trial.

The role of therapeutic needle aspiration in radial head fractures

Report by Simon Carley, *Specialist Registrar*
Search checked by Rob Birkenshaw, *Specialist Registrar*

Clinical scenario

A 17 year old female presents to the emergency department after a fall onto her right forearm. She complains of elbow pain and has a limited range of movement of that joint. Radiography reveals a moderate elbow effusion and an undisplaced fracture of the radial head (Manson type 1). You wonder whether aspirating the joint is worthwhile.

Three part question

In [patients with traumatic elbow effusions] is [aspiration of the joint better than conservative treatment] in [reducing symptoms and time to healing]?

Search strategy

Medline 1966 to 3/99 using the OVID interface. [{exp elbow OR exp elbow joint OR elbow\$.mp OR exp radius OR exp radius fractures OR radial head\$.mp} AND {exp aspira-

tion OR aspiration.mp OR aspirate\$.mp}] LIMIT to human and english language.

Search outcome

Forty seven papers were found of which 45 were irrelevant to the study question or of insufficient quality for inclusion; the remaining papers are shown in table 3.

Comment

The studies relevant to this question are very poor in design and execution. A properly designed prospective randomised controlled trial looking at pain, mobility, time to healing, and harm (infection rate) is necessary to investigate this further.

Clinical bottom line

While aspiration may benefit patients with traumatic elbow effusions the evidence is too poor to recommend it as a routine procedure.

- 1 Holdsworth BJ, Clements DA, Rothwell PN. Fractures of the radial head—the benefit of aspiration: a prospective controlled trial. *Injury* 1987;18:44–7.
- 2 Dooley JF, Angus PD. The importance of elbow aspiration when treating radial head fractures. *Arch Emerg Med* 1991; 8:117–21.

The role of diagnostic needle aspiration in olecranon bursitis

Report by Vince Choudhery, *Specialist Registrar*
Search checked by Katrina Herren, *Research Fellow*

Clinical scenario

A 45 year old labourer presents to the emergency department with a one day history of pain and swelling over his right elbow. Examination reveals a generally well, apyrexial man with a swollen, warm right olecranon bursa with overlying redness. You wonder whether it is necessary to aspirate and analyse bursal fluid to diagnose and treat this patient.

Three part question

In [adults with a clinical diagnosis of olecranon bursitis] does [diagnostic aspiration of the bursa] lead to [better diagnosis and outcome].

Search strategy

Medline 1966 to 3/99 using the OVID interface. ([{exp elbow OR exp elbow joint OR olecranon\$.mp} AND {bursa\$.mp OR exp bursa, synovial OR exp bursitis OR bursitis.mp}] OR [sepsi\$ AND {bursa\$.mp OR exp bursa, synovial OR exp bursitis OR bursitis.mp}]) LIMIT to human and english language.

Search outcome

Two hundred and nineteen papers were found of which 200 were irrelevant and 17 of insufficient quality for inclusion; the remaining papers were found in table 4.

Comment

While two studies addressed the diagnostic question alone, no studies at all could be found regarding the usefulness of diagnostic aspiration in improving outcome. The sensitivity of white cell analysis is just too low for use as a